

AMENDMENT
Serial No. 10/774,298
Docket No. VEL03-GN003

REMARKS

Administrative Summary

Claims 1, 5-33, 48, 51, 53-55, 57, 58, 61, 62, 64, and 66-90 are pending. Claims 1, 5-7, 12, 13, 15-17, 48, 51, 54, 55, 57, 58, 61, 62, 64, and 66 have been amended. Claims 2-4, 49, 50, 52, 56, 59, 60, 63, and 65 have been cancelled. Reconsideration of the application is respectfully requested.

January 30, 2008 Office Action

Rejection under 35 U.S.C. § 102

Claims 1 and 17 stand rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent Application Publication No. 2004/0081600 to Moreno et al (“Moreno”). This ground of rejection has been addressed fully by the amendments made to claims 1 and 17. Reconsideration and withdrawal of the 35 U.S.C. § 102(e) rejections pertaining to claims 1 and 17 are respectfully requested.

Both claims 1 and 17 have been amended to recite that the microchannels are isolated from an interior of the pressure vessel. In other words, the internal contents of the microchannels are sealed off from the internal contents of the pressure vessel. Claim 1 has also been amended to recite a heat exchanger, housed at least partially within the pressure vessel, in fluid communication with the first chemical reactor. Claim 17 as originally filed already recited a pair of unit operations. Multiple unit operations within a pressure vessel, however, are not taught by Moreno. Accordingly, a structure for housing multiple unit operations and the unit operations housed therein are clearly distinguishable from Moreno.

Reconsideration and withdrawal of the 35 U.S.C. §102(e) rejections of record for claims 1 and 17 are respectfully requested.

Rejections under 35 U.S.C. § 103

Claims 1-12, 16-31, 33, 67-70, 74-90 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious in view of U.S. Patent No. 6,159,434 to Gonjo et al. (“Gonjo”),

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in combination with United Kingdom Patent Application Publication No. 2 128 013 to Reiser ("Reiser"). This ground of rejection has been fully addressed by the amendments to claims 1 and 17.

The Office action alleges that Gonjo discloses a pair of unit operations coupled to one another, where at least one unit operation includes microchannels. The Office action concludes, however, that Gonjo discloses no pressure control vessel and obviously no pressure control devices for a pressure control vessel. Nevertheless, the Office action cites Reiser for disclosing a pressure vessel that contains a unit operation. The Examiner then cites portions from Gonjo for the proposition that, "Gonjo teaches a plate style chemical process system that is designed to be compressed together in order to prevent leaking reactants and products (see col. 14 lines 27-35),"¹ as alleged motivation for combining Gonjo with Reiser. But this proposition is inconsistent on its face with the teachings of Reiser.

Reiser explicitly teaches away from any combination with Gonjo. In direct contrast to the motivation alleged in the Office action, Reiser teaches using a pressure vessel to contain the leaking reactants/products. In other words, Reiser specifically teaches that, "[t]he seals 29 [between the manifold and stack sides] are not gas tight."² Reiser's deliberate leakage is precisely the opposite circumstance of that taught by Gonjo. Gonjo teaches away from having gaseous leaks, such as those embraced by Reiser. In other words, Gonjo discloses that leakage is desirable and uses high compression bonding to address this problem, while Reiser intentionally adopts leakage, but discloses using a pressure vessel to contain the leakage. Obviously, if one were to inhibit leakage as taught by Gonjo, one would not be motivated to use the redundant structure of Reiser.

In addition, the modification of Reiser to a non-leakage manifold system would appear to render Reiser's system unfit for its intended purpose. In other words, the pressure vessel of Reiser is taught to be operated with a stack of fuel cells that leak. To accommodate this leakage, Reiser teaches supplying a continuous feed of inert gas to the

¹ January 30, 2008 Office action, p. 6.

² GB 2 128 013, p. 1, l. 124.

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interior of the pressure vessel that flows inward into the gas manifolds. If the fuel cells do not leak, such as taught in Gonjo, the continuous inert gas feed of Reiser would result in the pressure vessel exploding.³

Accordingly, Applicants' claims 1 and 17 have been amended to clarify that the microchannels of the first reactor / first unit operation are isolated (i.e., not in fluid communication) from the interior of the pressure vessel. Because neither Gonjo nor Reiser discloses a microchannel unit operation within a pressure vessel, where the unit operation is isolated from the interior of the pressure vessel, claims 1 and 17 are clearly distinguishable from the art of record and in condition for allowance. Reconsideration and withdrawal of the rejections of record as to claims 1 and 17, as well as those claims depending therefrom, are respectfully requested.

Claims 13-15, 32, 48-66, and 71-73 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious in view of U.S. Patent No. 6,159,434 to Gonjo et al. ("Gonjo"), in combination with United Kingdom Patent Application Publication No. 2 128 013 to Reiser ("Reiser") in further combination with U.S. Patent No. 4,167,915 to Toole et al ("Toole"). This ground of rejection has been fully addressed by the amendments to claims 1 and 17.

As discussed previously, Gonjo and Reiser are not properly combinable. In fact, Reiser teaches away from Gonjo and vice versa. Accordingly, this ground of rejection must fail for these reasons alone. Reconsideration and withdrawal of the rejections of record as to claims 13-15, 32, 48, 51, 53-55, 57, 58, 61, 62, 64, 66, and 71-73 are respectfully requested.

Conclusion

In light of the foregoing, it is respectfully submitted that claims 1, 5-33, 48, 51, 53-55, 57, 58, 61, 62, 64, and 66-90, now pending, are patentably distinct from the references cited and are in condition for allowance. Reconsideration and withdrawal of the rejections of record are respectfully requested.

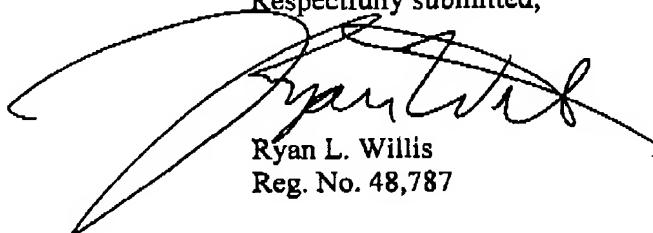
³ GB 2 128 013, p. 1, II. 48-49.

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The Commissioner for Patents is hereby authorized to charge any additional fees that may be required by this paper, or to credit any overpayment to Deposit Account 50-3072.

In the event that the Examiner wishes to discuss any aspect of this response, please contact the undersigned at the telephone number indicated below.

Respectfully submitted,



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